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Studies on the Helminth Fauna of Japan. : Part 46. Nematodes of Marine Mammals. With 3 Plates.

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**Studies on the Helminth Fauna of Japan.
Part 46. Nematodes of Marine Mammals.
With 3 Plates.**

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HETEROCHEILIDAE Railliet et Henry, 1915.

1. *Contracaecum callotariae* n. sp.

Pl. I, Figs. 1-2.

Habitat. Stomach of *Callotaria ursina* (Linné).

Locality. Pacific Ocean.

Material. One mature male and 4 gravid females.

Male. Body 75 mm in length, 1.5 mm in maximum breadth in middle region, tapering toward anterior extremity in esophageal region. Head 0.25 mm broad at level of lips. Lips 90 μ long. with dentigerous ridges; dorsal lip with a pair of double papillae, sub-ventral lip with one single and one double papilla. Interlabia pyramidal, 30 μ long. Nerve ring and cervical papillae 0.75 mm and 0.975 mm respectively from head end. Esophagus 5.15 mm long, 0.25 mm broad. Ventriculus small. Ventricular appendix cylindrical, 2.5 mm long. Intestinal cecum rather slender, 3.7 mm

long. Tail conical, 0.3 mm long, distinctly constricted at base of its spike-like tip, with 7 or 8 stalked papillae, of which the anterior four are close together immediately posterolateral to the cloacal aperture in line with the subventral pre- and adanal papillae, while the posterior 3 (or 4 on the right) lie just in front of the tail constriction, one (or two on the right) being lateral and the other two subventral. There are 74-77 preanal papillae including the adanals, the anteriormost one lying 9.6-9.75 mm from the cloacal aperture. Spicules slender, 4.8 mm long on the right, 4.9 mm on the left. The winding tubular testis 0.1 mm in diameter commences at a point 23 mm from the anterior extremity. It increases in diameter as it winds its way backwards, and finally turning forwards continues into the vesicula seminalis 20 mm from the tail end. The vesicula seminalis, up to 0.45 mm in diameter, gradually tapers posteriorly and leads into the ductus ejaculatorius at a distance of 4.25 mm from the posterior extremity. The ductus ejaculatorius with the greatest diameter of 0.36 mm a little behind its anterior end tapers rapidly to open into the cloaca.

Female. Body 73-98 \times 1.4-1.6 mm. Head 0.28-0.35 mm broad at lips, which are 0.1-0.125 mm long. Nerve ring and cervical papillae 0.75-0.91 mm and 0.88-1.15 mm respectively from anterior extremity. Esophagus 4.8-5.7 \times 0.32-0.4 mm, ventriculus muscular, very small, ventricular appendix 2.0-2.5 mm long. Intestinal cecum 3.9-4.3 mm long. Tail conical, 0.425-0.7 mm long, with a pair of small lateral papillae near its tip. Vulva dividing body length in ratio of 1:2.17-2.5. Vagina directed backwards, up to about 5 mm long. Eggs subglobular, 80 \times 65 μ .

The literature referring to the old species of the genus (*osculatum* Rud., from *Phoca vitulina*, *radiatum* Linstow, and *rectangula* Linton from Weddell's seal) being inaccessible to me the present species is compared with the other members of the genus as follows.

Species	<i>C. scotti</i> Leiper et Atkinson	<i>C. turgidum</i> Chapin	<i>C. callotariae</i> n. sp.
Body length . .	♂ 15 ♀ 15 or more	♂ 45 \times 1.8 ♀ 62 \times 2.8	♂ 7.5 \times 1.5 ♀ 73-98 \times 1.4-1.6
Interlabia . . .	very large, polygonal		pyramidal
Esophagus . . .	2.53 \times 0.4	♂ 6.3 ♀ 6.0	♂ 5.15 ♀ 4.8-5.7
Esophageal appendix	0.2	♂ 2.1 ♀ 2.0	♂ 2.5 ♀ 2.0-2.5

Intestinal cecum	1.8	1.7	♂ 3.7 ♀ 3.9 - 4.3
Tail		♂ 0.39 ♀ 0.8	♂ 0.3 ♀ 0.42 - 0.7
Spicules	3×2.7	12 (right) 11.8 (left)	4.8 (right) 4.9 (left)
Anal papillae .		about 20 preanals 10 ad- and postanals excl. those at base of tail spike	74 - 77 preanals 4 postanals
Vulva		near anterior third	dividing body length in ratio of 1 : 2.17 - 2.5
Eggs		60×54	80×65 ¹⁴
Hosts	<i>Diomedea melanophrys</i>	<i>Monachus schauinslandii</i>	<i>Callotaria ursina</i>

Literature.

Chapin, E., Descriptions of new internal parasites. Proc. U. S. Nat. Mus. 68 (2), 1 - 4, 1925. — Leiper, R. T. and Atkinson, E. I., Helminthes of the British Antarctic Expedition, 1910 - 1913. Proc. Zool. Soc. London, 223, 1914.

2. *Porrocaecum callotariae* n. sp.

Pl. I, Figs. 3 - 6.

Habitat. Stomach of *Callotaria ursina* (Linné).

Locality. Pacific Ocean.

Material. Two mature males, three immature and two gravid females.

Male. Body tapering anteriorly, 52 - 63 mm in length, 1.15 - 1.5 mm in maximum breadth in middle region. In a specimen whose vesicula seminalis is distended with spermatozoa the body is broader in this region than in the middle, but tapers toward the ductus ejaculatorius, where it becomes a little broader again. Tail conical, curved ventrad, 0.21 mm long. Head 0.325 - 0.4 mm broad at level of base of lips. Lips 0.175 mm long, with dentigerous ridge along anterior inner margin; dorsal lip with a pair of double papillae, subventral lip with a single and a double papilla. Interlabium in form of a flat papilliform prominence. Nerve ring and cervical papillae 0.67 - 0.7 mm and 0.8 - 1.2 mm respectively from head end. Esophagus 2.9 - 3.5 mm long by 0.25 - 0.33 mm broad. Ventriculus glandular, 1.3 - 1.5 mm long by 0.3 - 0.32 mm broad. Intestinal cecum 1.25 - 1.55 mm long. Spicules narrow, simple, with basal enlargement, 1.5 - 2.65 mm long; left one tipped with a notched wing. Of the anal papillae three pairs lie obliquely

behind the middle of the tail, with the posterior pair very close to the median line and a very minute lateral one near the tail tip. The three anterior postanal papillae, of which the middle one has a double ending, are in line with the preanals. The latter, 70-90 on the right, 65-100 on the left, are arranged somewhat irregularly; they may be in two or three rows, but in a single row most anteriorly. On the anterior margin of the cloacal aperture is a papilli-form cuticular protuberance at the middle, and on the posterior margin are three arcuate transverse ridges, each of which is armed with a row of pointed or truncated teeth as in *Porrocaecum azarasi* Yamaguti et Arima, 1942.

Female. Body 60-75×1.2-1.5 mm. A specimen 46 mm long is still immature. Head 0.35-0.4 mm in diameter. Nerve ring and cervical papillae 0.7 mm and 0.87-1.0 mm respectively from head end. Lips 0.175-0.2 mm long. Esophagus 3.3-4.0×0.32-0.38 mm. Ventriculus 1.5-1.7 mm long, 0.2 mm broad. Intestinal cecum 1.1-1.5 mm long. Tail conical, 0.25-0.3 mm long. Vagina directed forwards for greater distal part, turning backward proximally; unpaired uterus up to 15 mm long. Vulva 28-33 mm from anterior extremity, dividing body length in ratio of 1:1.1-1.3. Eggs subglobular, 48-66×39-48 μ , contained ovum not segmented.

This species differs from the most closely related *Porrocaecum azarasi* Yamaguti et Arima, 1942, in the number of preanal papillae, the position of the vulva, and the possession of a flat papilli-form interlabium.

Literature.

Yamaguti, S. and Arima, S., *Porrocaecum azarasi* n. sp. (Nematoda) from the Japanese Seal. Trans. Sapporo Nat. Hist. Soc. 17 (2), 113-116, 1942.

PSEUDALIIDAE Railliet, 1916.

3. *Irukanema dalli* n. g., n. sp.

Pl. I, Figs. 7-9; Pl. III, Figs. 1-5.

Habitat. Accessory nasal sinus of *Phocaenoides dalli*.

Locality. Tazima, Hyogo Prefecture.

Material. Numerous mature males and females.

Male. Body slender, 9.5-11.0 mm in length, with maximum breadth of 0.3-0.4 mm in region of anterior part of intestine. From this region the body tapers anteriorly to a blunt point and posteriorly in the region of the ductus ejaculatorius to a slender stalk-like portion, whose posterior end enlarges on the dorsal side of the

precloacal region and forms a hemispherical swelling which is continued on to the dorsal side of the tail. Cuticle smooth, without lateral flanges. Mouth aperture circular, without definite lips, leading directly into buccal capsule. On the head there are two lateral amphids and two pairs of equidistant submedian papillae. The latter are on a level with the base of the buccal capsule. Nerve ring and cervical papillae 0.15–0.21 mm and 0.23–0.27 mm respectively from head end. The buccal capsule is 21–27 μ long and has a very thick chitinous wall, whose outer face shows a conspicuous constriction at the middle, measuring 48–57 μ in diameter at the anterior end and 54–63 μ at the posterior end resting on the anterior end of the esophagus. In optical section the inner wall of the capsule is convergent posteriorly and has the greatest diameter (27–33 μ) at the entrance. Esophagus musculoglandular, slightly enlarged posteriorly, 0.36–0.42 \times 0.095–0.1 mm, with tri-radiate lumen. Intestine dark brown throughout. Tail plump, curved ventrally, 90–120 μ long, covered with inflated bursa-like cuticle, which is supported by one unpaired and four paired ventrally directed processes of the pulp. The unpaired median process of the pulp is the direct continuation of the tail proper and shows a knob-like termination, whose blunt-conical tip is directed ventrad. Of the paired lateral processes of the pulp the anterior is spiniform, curved inwards and much smaller than the other, and lies just lateral to the cloacal aperture, while the other lying posterolateral to the cloacal aperture is nearly uniform in breadth and provided at the truncate end with a small digitiform projection, which in turn has a papilliform tip. On the inner face of this process near its truncate end is a similar but a little smaller, 2-segmented projection. On the ventral side immediately in front of the cloaca the cuticle is inflated and forms in the median field a chitinous saucer measuring 0.15–0.19 mm anteroposteriorly and resting on an elevated pulp. Spicules similar, equal, 0.59–0.69 mm long; they may be divided into three portions; the proximal end appears like a dagger-handle, the next portion is enlarged to a spindle, while the greater distal portion is long, slender and assumes a fluted appearance owing to the presence of lateral flanges on the ventral side. Gubernaculum flat, long, undulating or folded.

The single testis with an attenuated end commences 0.29–1.1 mm behind the esophagus and runs straight backward along with the intestine, and continues into the vesicula seminalis, which in turn passes into the ductus ejaculatorius in the above mentioned stalk-like region characterized by oblique parietal muscle bundles.

Female. Body slender, 10–17 mm in length, with maximum breadth of 0.3–0.52 mm in front of its middle, tapering anteriorly more rapidly than posteriorly. Nerve ring and cervical papillae 0.17–0.28 mm and 0.27–0.35 mm respectively from head end. Head papillae as in male. Buccal capsule 24–30 μ long, with equatorial constriction on outer side, 50–70 μ in outside diameter and 24–36 μ in inside diameter at anterior end, 60–80 μ in greatest outside diameter at base. Esophagus with posterior swelling, 0.4–0.55 \times 0.11–0.135 mm. Intestine dark throughout owing to presence of brown granular ingesta. Tail stumpy, 50–70 μ long, with a pair of small papillae at the rounded end.

Ovaries tubular at the commencement, gradually widened posteriorly (up to 0.16 mm), but tapering abruptly as they pass into the germiduct, running straight backwards, sometimes winding anteriorly, their attenuated anterior ends lie in front of or behind (up to 1.5 mm) the posterior end of the esophagus or on a level with it. Germiduct narrow, about 0.8 mm long by 45 μ wide, more or less winding. Receptaculum seminis subcylindrical, 0.2–0.24 mm long by 0.1–0.125 mm wide. Uteri parallel to each other, distended with eggs, which are fully embryonated posteriorly. As measured in life the fully matured elliptical eggs containing embryos are 75–90 μ long by 42–45 μ broad, and the liberated embryos 0.21–0.24 mm long by 12–15 μ broad. Unpaired ovijector 0.35–0.4 mm long, thick-walled, commencing 0.55–0.65 mm in front of vulva, running backward ventral to intestine. Vagina 0.2–0.25 mm long, surrounded by a very thick layer of sphincter-like circular muscle fibers except at the two ends. Vulva 60–80 μ in front of anus, provided at the opening with two (an anterior and a posterior) cuticular bosses, each of which contains a digitiform process of the pulp.

The present species differs from *Torynurus convolutus* (Kuhn, 1829) Baylis et Daubney 1925, in the precloacal sucker-like organ, bursal rays, spicules, vulvar bosses, and especially in the possession of a definite buccal capsule. It is separated therefore as representing a new genus. The attributive of the compound generic name is the Japanese name for the host.

Irukanema n. g.

Generic diagnosis. Pseudaliidae Railliet, 1916; related to *Torynurus* Baylis et Daubney, 1925. Body slender, covered by smooth cuticle. Mouth without lips, with circular aperture. Head with one pair of lateral amphids and two pairs of submedian papillae. A thick-walled buccal capsule present. Esophagus musculoglandular, slightly enlarged just in front of its posterior end. **Male:** Posterior extremity with a hemispherical swelling dorsally and a chitinous saucer just in

front of cloacal aperture ; tail stumpy, with inflated cuticular bursa supported by an unpaired posterior median ray and two pairs of lateral rays, of which the smaller anterior tapers to a simple point, while the posterior has a terminal and an inner 2-segmented digitation. No anal papillae. Spicules similar, equal ; gubernaculum present. *Female* : Vulva preanal, provided with two cuticular bosses, between which the genital pore opens ; vagina with thick coat of circular muscle fibers ; uteri parallel, forming thick-walled ovijector before leading into vagina ; eggs thin-shelled, viviparous. Tail stumpy, with a pair of small papillae at its rounded end. Parasites of accessory nasal sinus of dolphins.

Genotype. *Irukanema dalli*

Literature.

Baylis, H. A. and Daubney, R., A revision of the lung-worms of cetacea. Parasit. 17, 201 - 216, 1925.

4. *Halocercus dalli* n. sp.

Pl. II, Figs. 10 - 13.

Habitat. Bronchi of *Phocaenoides dalli*.

Locality. Sea of Japan.

Material. Numerous adult males and females.

Male. Body filiform, 44 - 61 mm in length, with nearly uniform breadth of 0.25 - 0.3 mm except at both extremities. It tapers markedly from the beginning of the intestine toward the truncated head end. Cuticle smooth. One pair of lateral amphids and two pairs of submedian papillae present. Buccal cavity practically lacking. Esophagus cylindrical, musculoglandular, 0.15 - 0.195 mm long by 21 - 28 μ broad, with nerve ring a little behind its middle. Tail blunt-conical, 20 - 30 μ long. Bursa reduced to a mere inflation of cuticle supported by a posterior median ray with two symmetrical papillary terminations and two lateral rays, of which the anterior lying anterolateral to the cloacal aperture is simply pedunculated but the posterior lying about half-way between the anterior and the median has two papillary terminations as in *Halocercus delphini* Baylis et Daubney, 1925. Spicules slender, similar, equal, 0.5 - 0.59 mm long ; the basal portion (84 - 105 μ long) appearing like the handle of a sword, the next swollen portion (0.27 - 0.3 mm long) is flanged throughout and broader anteriorly than posteriorly and forms a half-spiral at its junction with the distal portion ; the latter is 0.15 - 0.16 mm long, slender, curved, not alate, and tapers to a sharp point. Gubernaculum plate-like, granulated, never folded, 60 - 75 μ long, about 26 μ broad at anterior end, 12 - 15 μ in maximum thickness at anterior part, with a distinct median incision on anterior border. Origin of testis very variable according to individuals ; 1/6 - 1/2 of body length from anterior extremity.

Female. Body filiform as in male, $67-86 \times 0.25-0.4$ mm, blunt-pointed behind. Esophagus $0.15-0.21 \times 0.021-0.03$ mm. Tail blunt-conical, $35-40 \mu$ long. Vulva $40-60 \mu$ in front of anus, $75-100 \mu$ from tail end, at level of anterior part of rectum. Vagina $0.12-0.14$ mm long, surrounded by sphincter-like circular muscle. Eggs elliptical, $57-68 \times 30-33 \mu$; embryos $0.18-0.21 \times 0.012-0.014$ mm as fixed in 70% alcohol.

The following table shows the differences between the present species and the known members of the same genus.

Species	<i>H. delphini</i>	<i>H. lagenorhynchi</i>	<i>H. gymnurus</i>	<i>H. inflexocaudatus</i>	<i>H. pingi</i>	<i>H. brasiliensis</i>	<i>H. dalli</i>
Body length	♂ 50-65 ♀ 60-90	?	15-18 22-23	up to 20 ? (55)	150-183 255-364	30-35 45-52	44-61 67-86
Esophagus	0.6	0.2	?	0.18- 0.195	0.19- 0.22	0.22- 0.28	0.15- 0.21
Spicules	0.73- 0.76	0.65	0.42- 0.47	0.2	0.77- 0.82	0.6-0.7	0.5- 0.59
Gubernaculum	?	0.1	?	55 μ	rope-like	0.1- 0.12	60-75 μ plate-like
Embryo	0.26- 0.285	?	?	?	?	0.22- 0.26	0.18- 0.21
Host	<i>Delphinus delphis</i>	<i>Lagenorhynchus albirostris</i>	<i>Phoca vitulina</i>	<i>Phocaena phocaena</i>	<i>Neomeris phocaenoides</i>	<i>Sotalia brasiliensis</i>	<i>Phocaenoides dalli</i>

As is evident from the above table the present species differs from *H. delphini* Baylis et Daubney, 1925, chiefly in the length of the esophagus and of the embryo, from *H. lagenorhynchi* Baylis et Daubney, 1925, in the character of the gubernaculum, from *H. gymnurus* (Railliet, 1899) in body length, from *H. inflexocaudatus* (v. Sieb., 1842) in the length of the spicules, from *H. pingi* Wu, 1929, in body size, the characters of the spicules and of the gubernaculum, and from *H. brasiliensis* Lins, 1933, in the anterior bursal ray having a single, not a double papilliform termination, and in the spicules being distinctly alate at the middle portion but not bifid distally.

5. *Halocercus sunameri* n. sp.

Pl. II, Figs. 14-16; Pl. III, Fig. 6.

Habitat. Bronchi of *Neomeris phocaenoides* Cuvier.

Locality. Akasi, Hyogo Prefecture.

Material. Numerous males and females.

Male. Body filiform, $22-32$ mm long by $0.2-0.25$ mm broad, tapering at both extremities. Cuticle wrinkled transversely at

anterior extremity. One pair of lateral amphids and two pairs of submedian papillae present. Nerve ring 0.1–0.11 mm from head end. Esophagus musculoglandular, cylindrical, 0.15–0.2 mm long by 18–22 μ broad. Tail blunt, 18–30 μ long, with rudimentary bursa supported by two pairs of lateral rays and an unpaired posterior ray. The anterior lateral ray lying on a level with the cloacal aperture has a broad base and a minute papillary termination, whereas the posterior lateral ray as well as the posterior has a double termination. Spicules equal, 0.22–0.27 mm long, consisting of a handle and a gently curved alate blade. Gubernaculum petaloid, granular, with a distinct median incision anteriorly. Testes originating 2.5–6.5 mm behind head end.

Female. Body greyish white, filiform, 35–96 \times 0.25–0.4 mm. Esophagus 0.13–0.26 mm long by 18–20 μ broad. Tail blunt-conical, 36–42 μ long. Vulva 72–100 μ from tail tip, level with anterior end of rectum. Unpaired uterus and vagina 0.38–0.48 mm in combined length, the former more or less constricted at its anterior end by sphincter-like thickening of circular parietal muscle. Embryonated eggs elliptical, with delicate shell, 75–85 \times 50–55 μ ; embryos 0.24–0.25 mm long, 12 μ broad as killed in hot water.

This species differs from the most closely related *Halocercus dalli* (v. s.) in the length of the spicules and of the gubernaculum. It is easily distinguished from *H. pingi* Wu, 1929, from the same host species by body length, not to speak of the length of the spicules and the shape of the gubernaculum.

The specific name is the Japanese name for the host.

Literature.

Baylis, H. A. and Daubney, R., A revision of the lung-worms of cetacea. Parasit. 17, 201–216, 1925. — Lins, J., de Almeida. Sobre as especies do genero *Halocercus* Baylis et Daubney, 1925. Arch. d. Esc. sup. d. Agric. e Med. Vet. 10 (2), 153–160, 1933. — Wu, H. W., On *Halocercus pingi* n. sp. A lung-worm from the porpoise, *Neomeris phocaenoides*. Jour. Parasit. 15, 216–279, 1929.

6. *Pseudostenurus sunameri* n. g., n. sp.

Pl. II, Figs. 17–19; Pl. III, Figs. 7–9.

Habitat. Accessory nasal sinus of *Neomeris phocaenoides* Cuvier.

Locality. Akasi, Hyogo Prefecture.

Material. Numerous mature males and females.

Male. Body blood-red in life, very slender, 17–28 mm in length with greatest diameter of 0.35–0.45 mm near anterior part of body, whence it tapers rapidly toward the truncated anterior

extremity but slowly toward the constricted precloacal region. Cuticle striated longitudinally. Diameter of head $80-100\ \mu$ at level of posterior papillae. On the head there are two circles of one pair of lateral amphids and two pairs of submedian papillae. Mouth aperture circular, leading directly into shallow, thick-walled buccal capsule, which measures $9-15\ \mu$ in length, $40-48\ \mu$ in outside diameter and whose chitinous wall extends over the funnel-shaped entrance of the esophagus. Esophagus musculoglandular, somewhat club-shaped posteriorly but less conspicuously swollen at anterior end, $0.37-0.42\ \text{mm}$ long by $75-90\ \mu$ broad, its cuticular lining is thickened at the corners of the triradiate lumen except at the tapering posterior end. Cervical papillae $0.2-0.29\ \text{mm}$ from head end. The posterior extremity is strongly curved ventrad a little in front of the cloacal aperture, forming a deep narrow sinus whose anterior wall shows a powerful sucker-like structure. Bursa well developed, divided into a dorsal lobe and a pair of lateral lobes. Each of the latter contains three rays, of which the anterior is simply digitiform and the middle consists of a stout base bearing two papillae on the inner side and a stumpy process terminating inwardly in a pedunculate papilla. These two rays are fused at the base, whereas the posterior is separate and curved dorsal, with a small nodular process on the convex side near its tip. The small dorsal lobe is supported by a horn-like ray about $30-40\ \mu$ long. No prebursal papillae observed. Spicules curved ventrad, sword-like, with distinct ala-like edge except at the handle; right one $0.54-0.61\ \text{mm}$ long, left one $0.69-0.81\ \text{mm}$ long. Gubernaculum long, about $10\ \mu$ broad, granular for the most posterior part but hyaline anteriorly, may be folded between the two parts.

Female. Body blood-red in life, slender, $25-34\ \text{mm}$ in length, with maximum breadth of $0.37-0.5\ \text{mm}$ near anterior end, gradually tapering toward stumpy tail. Head truncated at extremity, $80-110\ \mu$ in diameter at level of posterior papillae. On each side of the prevulvar region is a series of three to five hemispherical cuticular swellings. Cuticle finely striated longitudinally. Cervical papillae $0.22-0.29\ \text{mm}$ from head end. Esophagus $0.37-0.4 \times 0.078-0.093\ \text{mm}$. Tail $50-60\ \mu$ long, with a pair of minute papillae at tip. Vulva opposite anus, with a rounded sinus between. Immediately in front of the vulva as well as immediately behind the anus is a spherical cuticular swelling. At the anterior end of the ovijector formed by union of the paired uteri and provided with a thick coat of somewhat spiral muscle fibers is a powerful sphincter about $80\ \mu$ in outside diameter. Combined length of vagina and ovijector $0.27-0.3\ \text{mm}$. No vaginal sphincter. Eggs subglobular,

contained ovum not yet embryonated, $57-81 \times 54-72 \mu$ in life.

This worm is characterized by the strongly crooked posterior extremity of the male, the presence of a sucker like structure in the precloacal region of the male, the presence of lateral cuticular swellings in the prevulvar region of the female, etc. There is no doubt that it represents a distinct genus though resembling *Stenurus* in some of the other important characters.

Pseudostenurus n. g.

Generic diagnosis. Pseudaliidae Railliet, 1916. Body blood-red in life, slender, attenuated posteriorly. Cuticle longitudinally striated. Mouth without lips. Head with one pair of lateral amphids and two pairs of submedian papillae. A shallow, thick-walled buccal capsule present. Esophagus musculoglandular, somewhat club-shaped. **Male:** Posterior extremity constricted off and strongly curved ventrad, with a powerful sucker-like structure ventrally and a three-lobed bursa posteriorly; dorsal lobe of bursa small, supported by blunt-pointed horn-like ray; lateral lobes well developed, with three rays, of which the anterior and the middle have a common base; spicules similar, unequal, with ala-like edge. Gubernaculum slender. **Female:** Tail stumpy, with a pair of minute papillae at tip; vulva with a spherical swelling immediately in front of anus with a similar structure immediately behind, both with a deep sinus between. A series of 3-5 hemispherical cuticular swellings on each side of prevulvar region. Uteri parallel, uniting a short distance in front of vulva to form an ovijector provided with a powerful sphincter at its beginning; vagina without sphincter; oviparous; eggs subglobular, contained ovum not embryonated. Parasites of accessory nasal sinus of marine mammals.

Genotype. *Pseudostenurus sunameri*.

Explanation of Plates.

Plate I.

Figs. 1-2. *Contracaecum callotariae* n. sp.

Fig. 1. Part of female showing ventriculus, ventricular appendix and intestinal cecum.

Fig. 2. Posterior extremity of male, lateral view

Figs 3-6. *Porrocaecum callotariae* n. sp.

Fig. 3. Anterior extremity of male.

Fig. 4. Part of female showing ventriculus and intestinal cecum, lateral view.

Fig. 5. Posterior extremity of male, lateral view.

Fig. 6. Posterior extremity of male, ventral view

Figs. 7-9. *Irukanema dalli* n. g., n. sp.

Fig. 7. Anterior extremity of male, dorsoventral view.

Fig. 8. Posterior extremity of male, lateral view.

Fig. 9. Posterior extremity of female, lateral view.

Plate II.

- Figs. 10-13. *Halocercus dalli* n. sp.
 Fig. 10. Anterior extremity of female, lateral view.
 Fig. 11. Posterior extremity of male, ventral view.
 Fig. 12. Posterior extremity of male, lateral view.
 Fig. 13. Posterior extremity of female, lateral view.
 Figs. 14-16. *Halocercus sunameri* n. sp.
 Fig. 14. Posterior extremity of male, ventral view.
 Fig. 15. Anterior extremity of male, lateral view.
 Fig. 16. Posterior extremity of female, lateral view.
 Figs. 17-19. *Pseudostenurus sunameri* n. g., n. sp.
 Fig. 17. Anterior extremity of male, dorsal view.
 Fig. 18. Posterior extremity of male, lateral view.
 Fig. 19. Posterior extremity of female, lateral view.

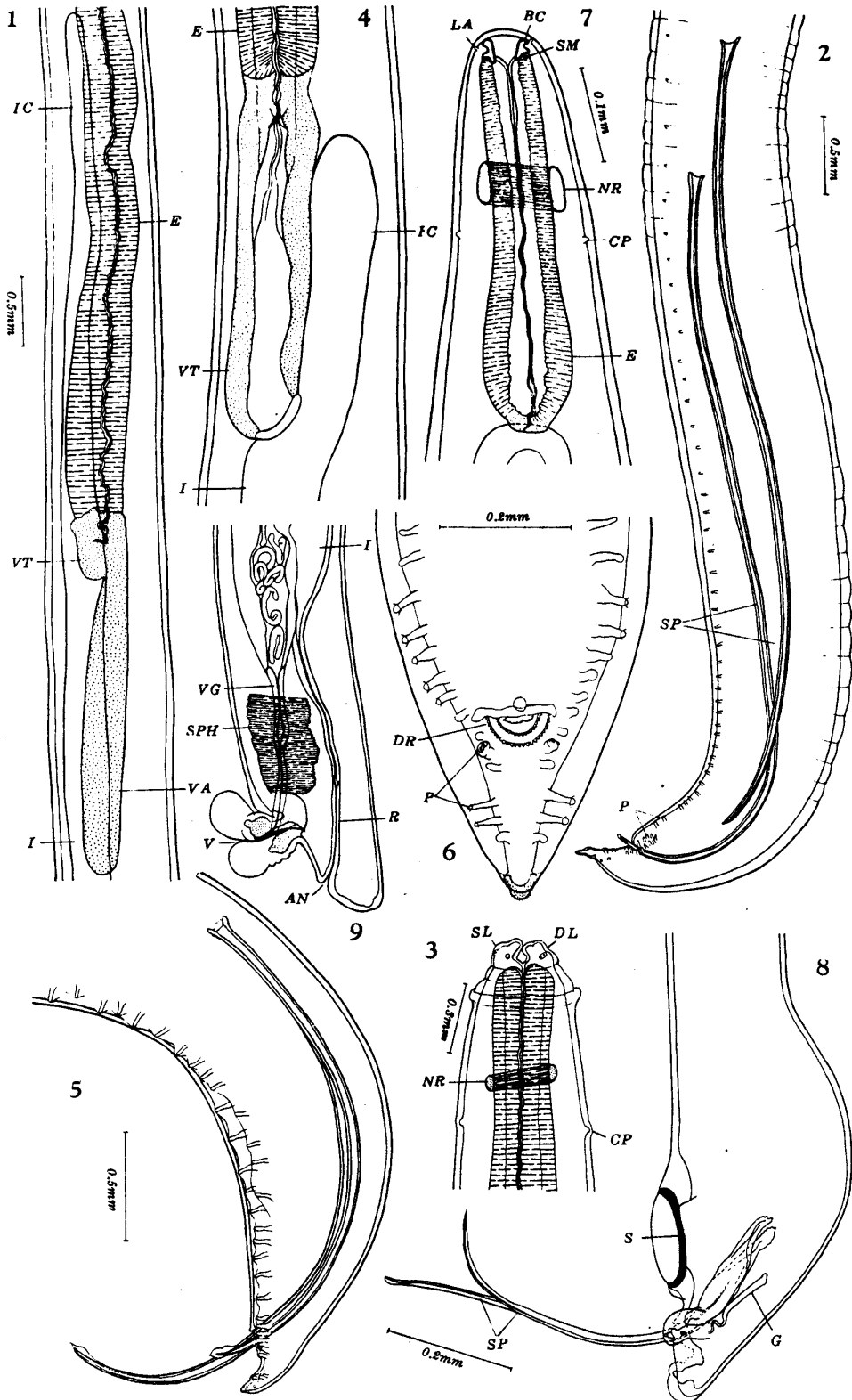
Plate III.

- Figs. 1-5. *Irukanema dalli* n. g., n. sp.
 Fig. 1. Posterior extremity of male, ventral view, 75X.
 Fig. 2. Posterior extremity of male, lateral view, 75X.
 Fig. 3. Posterior extremity of female, lateral view, 75X.
 Fig. 4. Embryonated eggs and liberated embryos.
 Fig. 5. Embryo, 300X.
 Fig. 6. Posterior extremity of male of *Halocercus sunameri*, ventral view, 75X.
 Figs. 7-9. *Pseudostenurus sunameri* n. g., n. sp.
 Fig. 7. Anterior extremity of male, dorsoventral view, 75X.
 Fig. 8. Posterior extremity of male, lateral view, 75X.
 Fig. 9. Posterior extremity of female, lateral view, 75X.

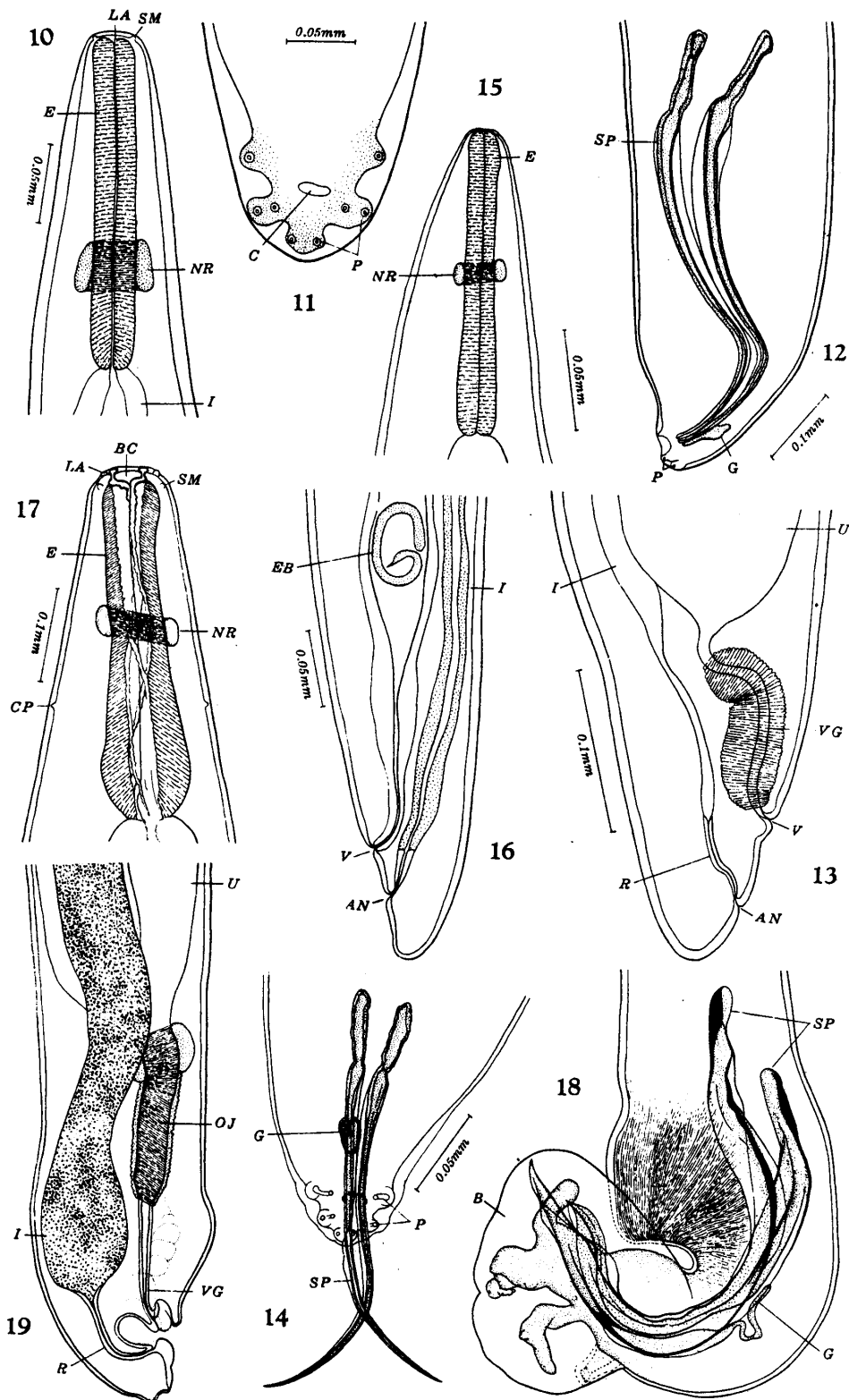
Abbreviations used in Figures.

AN = anus, BC = buccal capsule, C = cloaca, CP = cervical papilla,
 DL = dorsal lip, DR = dentigerous ridge, E = esophagus, EB = embryo,
 G = gubernaculum, I = intestine, IC = intestinal cecum, LA = lateral
 amphid, NR = nerve ring, OJ = ovijector, P = pharynx, R = rectum,
 S = sucker-like structure, SL = submedian lip, SM = submedian papilla,
 SP = spicule, SPH = sphincter, U = uterus, V = vulva, VA = ventri-
 cular appendix, VG = vagina, VT = ventriculus.

YAMAGUTI: STUDIES ON THE HELMINTH FAUNA OF JAPAN XLVI PL. I



YAMAGUTI: STUDIES ON THE HELMINTH FAUNA OF JAPAN XLVI PL. II



YAMAGUTI: STUDIES ON THE HELMINTH FAUNA OF JAPAN XLVI PL.III

